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DATE: Monday, November 14, 2005

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L8: Entry 1 of 12

File: PGPB

Mar 6, 2003

DOCUMENT-IDENTIFIER: US 20030046434 A1

TITLE: Method and system for synchronizing mobile devices

Application Filing Date:
20010814

CLAIMS:

29. A mobile device having a data store and computer-executable instructions, the computer-executable instructions, comprising: formatting a synchronization message having portions including: a version ID portion; and a commands portion, the commands portion including information that defines changes to be made to a server to cause data on the server system to be synchronized with data on the data store; and transmitting the formatted message to the server.

34. A server having a data store and computer-executable instructions, the computer-executable instructions, comprising: receiving an update synchronization message having portions including: another version ID portion; and another commands portion, including information that defines changes to be made on the server to cause the data store to be synchronized with data on a mobile device; and sending a response synchronization message having portions including: a version ID portion; and a commands portion, including information that defines changes to be made on the mobile device to cause the data store to be synchronized with data on the mobile device; and if an error occurred while processing the update synchronization message, a response portion that indicates that synchronization was not successful.

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L8: Entry 2 of 12

File: PGPB

Jul 25, 2002

DOCUMENT-IDENTIFIER: US 20020099727 A1

TITLE: Accounting for update notifications in synchronizing data that may be represented by different data structures

Application Filing Date:
20010124

Detail Description Paragraph:

[0031] Those of skill in the art will recognize that the principles of the present invention allow for efficient demand synchronization when a message client may receive update notifications from a message server, as noted in the following and other considerations. First, update notifications that the message client receives are communicated with demand synchronization requests so that demand synchronization does not duplicate the changes the message client received through update notification. Second, demand synchronization provides a change if an update notification is not received or if an update notification includes only a portion of the change. For example, an update notification may include only certain portions of an email message, such as a subject line, the sender, etc. Demand synchronization provides other portions that were not included in the update notification. Third, changes may be identified regardless how a particular device stores data. In many cases, data formats, representations, and supported fields vary from one device to another, based on corresponding differences in application software, operating systems, available memory, processor type, etc.

CLAIMS:

12. In an electronic messaging environment that includes a message server and one or more message clients, a method of synchronizing data stored at the one or more message clients with data stored at the message server, while accounting for one or more update notifications that either may or may not have been received by the one or more message clients and while accounting for any differences in how the message server and the one or more message clients store data, the method comprising: an act of making a plurality of changes in the message server data; an act of generating a plurality of tokens identifying each of the plurality of changes in the message server data; an act of sending a plurality of notifications to the one or more message clients over an unreliable communication channel, each notification including (i) at least one of the plurality the changes and (ii) at least one of the plurality of tokens, the at least one of the plurality of tokens corresponding to the at least one of the plurality of changes; an act of receiving a plurality of tokens back from the one or more message clients; an act of interpreting one or more tokens that were sent to the one or more message clients but not received back from the one or more message clients as indications that one or more changes are missing from the one or more message clients; and an act of resending the one or more missing changes to the one or more message clients.

19. In an electronic messaging environment that includes a message server and one or more message clients, a method for synchronizing data stored at the one or more message clients with data stored at the message server, while accounting for one or more update notifications that either may or may not have been received by the one

or more message clients and while accounting for any differences in how the message server and the one or more message clients store data, the method comprising: a step for providing, over an unreliable communication channel, a plurality of notifications to the one or more message clients, the plurality of notifications including (i) a plurality of changes to the data stored at the message server, and (ii) a plurality of tokens identifying each of the plurality of changes; a step for determining whether or not the one or more message clients are missing any of the plurality of notifications based on whether or not the one or more message clients can provide back each of the plurality of tokens identifying each of the plurality of changes; and a step for providing to the one or more message clients, any change associated with a missing notification identified in the step for determining.

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L8: Entry 3 of 12

File: USPT

Sep 6, 2005

DOCUMENT-IDENTIFIER: US 6941326 B2

TITLE: Accounting for update notifications in synchronizing data that may be represented by different data structures

Application Filing Date (1):
20010124

Detailed Description Text (4):

Those of skill in the art will recognize that the principles of the present invention allow for efficient demand synchronization when a message client may receive update notifications from a message server, as noted in the following and other considerations. First, update notifications that the message client receives are communicated with demand synchronization requests so that demand synchronization does not duplicate the changes the message client received through update notification. Second, demand synchronization provides a change if an update notification is not received or if an update notification includes only a portion of the change. For example, an update notification may include only certain portions of an email message, such as a subject line, the sender, etc. Demand synchronization provides other portions that were not included in the update notification. Third, changes may be identified regardless how a particular device stores data. In many cases, data formats, representations, and supported fields vary from one device to another, based on corresponding differences in application software, operating systems, available memory, processor type, etc.

CLAIMS:

8. In an electronic messaging environment that includes a message server and one or more message clients, a method for enabling synchronization of data stored at the one or more message clients with data stored at the message server, while accounting for one or more update notifications that either may or may not have been received by the one or more message clients and while accounting for any differences in how the message server and the one or more message clients store data, the method comprising: a step for providing, over an unreliable communication channel, a plurality of notifications to the one or more message clients without requesting or receiving acknowledgement of receipt of the notifications by the one or more message clients, the plurality of notifications including (i) a plurality of changes to the data stored at the message server, and (ii) a plurality of tokens identifying each of the plurality of changes; a step for determining whether or not the one or more message clients are missing any of the plurality of notifications based on whether or not the one or more message clients can provide back each of the plurality of tokens identifying each of the plurality of changes; an act of sending a list identifying missing notifications to the one or more corresponding message clients; receiving a request from the one or more message clients to resend the one or more missing notifications; and an act of resending the one or more missing notifications to the one or more requesting message clients.

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L8: Entry 4 of 12

File: USPT

Nov 16, 2004

DOCUMENT-IDENTIFIER: US 6820088 B1

**** See image for Certificate of Correction ****

TITLE: System and method for synchronizing data records between multiple databases

Application Filing Date (1):
20000410

Detailed Description Text (29):

At step 86, the other Hosts (Host 2) receives the second update message 88B and first determines whether a conflict exists by comparing the transmitted Host synchronization parameter (H2SP) with that stored at the respective other Host. Assuming no conflict exists, the other Host(s) (Host 2) accepts the changes from the update message, increments the corresponding Device synchronization parameter DSP.sub.H2, and stores DR.sub.H1U as the updated data record. In this manner, an update at Host 1 is synchronized to both the Device 12 and any other Hosts (Host 2) that are being synchronized via the system.

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